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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,029	09/19/2000	Subir Varma	164.1014.01	5865

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SWERNOFSKY LAW GROUP PC
P.O. BOX 390013
MOUNTAIN VIEW, CA 94039-0013

EXAMINER

DUONG, FRANK

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/664,029

Applicant(s)

VARMA ET AL.

Examiner

Frank Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. This Office Action is a response to the communication dated 09/19/2000. Claims 1-17 are pending in the application.

Information Disclosure Statement

2. The information disclosure statement filed 09/17/2001 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been considered and placed in the application file.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 17-18 are rejected under 35 U.S.C. 112, first paragraph, as based on a single means claim ("means for synchronizing frames"). A single means claim which covered every conceivable means for achieving the stated purpose was held noneabling for the scope of the claim because the specification disclosed at most only those means known to the inventor. See *In re Hyatt*, 708 F.2d 712, >714-715, <218 USPQ 195>, 197< (Fed. Cir. 1983).

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Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 6, 11 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Esmailzadeh et al (Quasi-Synchronous Time Division Duplex CDMA, IEEE, pages 1637-1641, 1994) (hereinafter "Esmailzadeh").

Regarding **claim 1**, in accordance with Esmailzadeh reference entirety, Esmailzadeh discloses a method of managing time division duplexing (TDD) across plural channels (*Figure 4; channels of User #1-#3*), comprising the step of:

synchronizing frames (*Figure 4*) (*TDD frames of User #1-#3*) across the plural channels (*channels of User #1-#3*) so that upstream frames (*Forward Link frames*) and downstream frames (*Reverse Link frames*) coincide across the plural channels (*channels of User #1-#3*) (*note: on page 4, section 4, in according to Figure 4*, Esmailzadeh discloses "*the quasi-synchronous state of reception is achieved upon subscription by a mobile unit. A base station transmits to all users at the beginning of each TDD frame. A user, trying to place a call, transmits its reverse link signal after*

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awaiting a nominal waiting time t_w . Base station then will instruct the user to increase/decrease t_w for the user to make itself quasi-synchronous with other users. Upon achievement of the QS state, the guard time at the base station t_{gi} will be equal for all users ($=t_g$)". The recitation thereat in view of Figure 4 anticipates the claimed limitation in a manner as recited).

Regarding **claim 6**, in accordance with Esmailzadeh reference entirety, Esmailzadeh discloses a base station (*page 1638, section 4, second paragraph*) that manages time division duplexing (TDD) across plural channels (*Figure 4; channels of User #1-#3*), comprising:

an input/output interface (not shown; inherent in a base station in order to receive data from the MSC);

a transceiver (*not shown; inherent in order to transmit/receive from mobiles*);

a controller that synchronizes frames (*Figure 4*) (*TDD frames of User #1-#3*) across the plural channels (*channels of User #1-#3*) so that upstream frames (*Forward Link frames*) and downstream frames (*Reverse Link frames*) coincide across the plural channels (*channels of User #1-#3*) (*note: a controller is inherent inside the base station as disclosed in the Abstract. Moreover, on page 4, section 4, in according to Figure 4, Esmailzadeh discloses "the quasi-synchronous state of reception is achieved upon subscription by a mobile unit. A base station transmits to all users at the beginning of each TDD frame. A user, trying to place a call, transmits its reverse link signal after awaiting a nominal waiting time t_w . Base station then will instruct the user to increase/decrease t_w for the user to make itself quasi-synchronous with other users.*

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Upon achievement of the QS state, the guard time at the base station t_{gi} will be equal for all users ($=t_g$)". The recitation thereat in view of Figure 4 anticipates the claimed limitation in a manner as recited).

(note: computer code or programming instruction of claim 11 is equated to corresponding to method step of claim 1)

Regarding **claim 11**, in accordance with Esmailzadeh reference entirety, Esmailzadeh discloses a memory (*not shown; inherent in base station of Figure 2 or Figure 4 disclosed in section 4*) storing information including instructions executable by a processor to manage time division duplexing (TDD) across plural channels (*Figure 4; channels of User #1-#3*), the instructions comprising:

synchronizing frames (*Figure 4*) (*TDD frames of User #1-#3*) across the plural channels (*channels of User #1-#3*) so that upstream frames (*Forward Link frames*) and downstream frames (*Reverse Link frames*) coincide across the plural channels (*channels of User #1-#3*) (*note: on page 4, section 4, in according to Figure 4*, Esmailzadeh discloses "the quasi-synchronous state of reception is achieved upon subscription by a mobile unit. A base station transmits to all users at the beginning of each TDD frame. A user, trying to place a call, transmits its reverse link signal after awaiting a nominal waiting time t_w . Base station then will instruct the user to increase/decrease t_w for the user to make itself quasi-synchronous with other users. Upon achievement of the QS state, the guard time at the base station t_{gi} will be equal for all users ($=t_g$)". The recitation thereat in view of Figure 4 anticipates the claimed limitation in a manner as recited).

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Regarding **claim 16**, in accordance with Esmailzadeh reference entirety, Esmailzadeh discloses a method of managing time division duplexing (TDD) across plural channels (*Figure 4; channels of User #1-#3*), comprising the step of:

synchronizing frames (*Figure 4*) (*TDD frames of User #1-#3*) across the plural channels (*channels of User #1-#3*) so that upstream frames (*Forward Link frames*) and downstream frames (*Reverse Link frames*) coincide across the plural channels (*channels of User #1-#3*) (note: on page 4, section 4, in according to *Figure 4*, Esmailzadeh discloses "the quasi-synchronous state of reception is achieved upon subscription by a mobile unit. A base station transmits to all users at the beginning of each TDD frame. A user, trying to place a call, transmits its reverse link signal after awaiting a nominal waiting time t_w . Base station then will instruct the user to increase/decrease t_w for the user to make itself quasi-synchronous with other users. Upon achievement of the QS state, the guard time at the base station t_{gi} will be equal for all users ($=t_g$)". The recitation thereat in view of *Figure 4* anticipates the claimed limitation in a manner as recited).

5. Claims 1-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Gilbert et al (USP 6,016,311) (hereinafter "Gilbert").

Regarding **claim 1**, in accordance with Gilbert reference entirety, Gilbert discloses a method of managing time division duplexing (TDD) across plural channels (*Figure 4; channels of CPEs 110*), comprising the step of:

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synchronizing frames across the plural channels so that upstream frames and downstream frames coincide across the plural channels (*note: In the Abstract and thereafter, Gilbert discloses the communication channels are configured to have symmetric uplink/downlink bandwidths between the CPEs 104 and the base station 106. Moreover, at col. 13, line 40 and thereafter, Gilbert further discloses co-channel interference is reduced by synchronizing the cell transmit/receive base stations 106 with or across cluster 160. The recitation thereat in view of Figures anticipates the claimed limitation in a manner as recited).*

Regarding **claim 2**, in addition to features recited in base claim 1 (see rationales discussed above), Gilbert further discloses assigning one channel to each of plural consumer provided equipment (110), wherein each consumer provided equipment receives media access protocol messages (*address information*) on its assigned channel (*col. 10, lines 18-20*).

Regarding **claim 3**, in addition to features recited in base claim 2 (see rationales discussed above), Gilbert further discloses a base station controller (Fig. 5; 122 or Fig. 9; 162) generates the media access protocol messages, and wherein the media access protocol messages instruct the consumer provided equipment to switch channels so as to receive data burst (*col. 13, lines 51-59 and col. 10, lines 18-20 and col. 13, lines 4-18*).

Regarding **claim 4**, in addition to features recited in base claim 3 (see rationales discussed above), Gilbert further discloses wherein the base station controller includes a centralized scheduler (cluster controller 162) that allocates channels and slots in

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those channels to the consumer provided equipment for receipt of the data burst (*col. 13, lines 53-54 and thereafter*).

Regarding **claim 5**, in accordance with Gilbert reference entirety, Gilbert discloses a method of receiving time division duplexed messages, comprising the step of: switching channels based on received media access control messages so as to receive data burst on plural channels (*col. 13, lines 51-59 and col. 10, lines 18-20 and col. 13, lines 4-18*).

Regarding **claim 6**, in accordance with Gilbert reference entirety, Gilbert discloses a base station (*Fig. 4; element 106*) that manages time division duplexing (TDD) across plural channels (*Figure 4; channels of CPEs 110*), comprising:

an input/output interface (not shown; inherent as shown in Fig. 6);

a transceiver (*Fig. 6; 132*);

a controller that synchronizes frames (*Figure 6; 128*) across the plural channels (so that upstream frames and downstream frames coincide across the plural channels (*note: In the Abstract and thereafter, Gilbert discloses the communication channels are configured to have symmetric uplink/downlink bandwidths between the CPEs 104 and the base station 106. Moreover, at col. 13, line 40 and thereafter, Gilbert further discloses co-channel interference is reduced by synchronizing the cell transmit/receive base stations 106 with or across cluster 160. The recitation thereat in view of Figures anticipates the claimed limitation in a manner as recited*)).

Regarding **claim 7**, in addition to features recited in base claim 6 (see rationales discussed above), Gilbert further discloses wherein the controller further assigns one

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channel to each of plural consumer provided equipment (110), wherein each consumer provided equipment receives media access protocol messages (*address information*) on its assigned channel (*col. 10, lines 18-20*).

Regarding **claim 8**, in addition to features recited in base claim 7 (see rationales discussed above), Gilbert further discloses wherein the controller (Fig. 5; 122 or Fig. 9; 162) generates the media access protocol messages, and wherein the media access protocol messages instruct the consumer provided equipment to switch channels so as to receive data burst (*col. 13, lines 51-59 and col. 10, lines 18-20 and col. 13, lines 4-18*).

Regarding **claim 9**, in addition to features recited in base claim 8 (see rationales discussed above), Gilbert further discloses wherein the controller further comprises a centralized scheduler (*cluster controller 162*) that allocates channels and slots in those channels to the consumer provided equipment for receipt of the data burst (*col. 13, lines 53-54 and thereafter*).

Regarding **claim 10**, in accordance with Gilbert reference entirety, Gilbert discloses a consumer provided equipment (Fig. 7 or 8 and col. 11, line 16 to col. 13, line 3) that receives time division duplexed messages, comprising:

a transceiver (146 or 158) that can dynamically switch between plural channels;
and

a controller (148 or 156) for controlling the transceiver, wherein based on the received media access control protocol messages, the consumer provided equipment switches channel so as to receive data bursts on plural channels.

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(note: computer code or programming instruction of claim 11 is equated to corresponding to method step of claim 1. Moreover, at col. 18, it is disclosed the ATDD method and apparatus may be implemented in hardware, software, or a combination of both)

Regarding **claim 11**, in accordance with Gilbert reference entirety, Gilbert discloses a memory (*Fig. 6; 128*) storing information including instructions executable by a processor (*Fig. 6; 128*) to manage time division duplexing (TDD) across plural channels (*Figure 4; channels of CPEs 110*), the instructions comprising:

synchronizing frames across the plural channels so that upstream frames and downstream frames coincide across the plural channels *(note: In the Abstract and thereafter, Gilbert discloses the communication channels are configured to have symmetric uplink/downlink bandwidths between the CPEs 104 and the base station 106. Moreover, at col. 13, line 40 and thereafter, Gilbert further discloses co-channel interference is reduced by synchronizing the cell transmit/receive base stations 106 with or across cluster 160. The recitation thereat in view of Figures anticipates the claimed limitation in a manner as recited).*

Regarding **claim 12**, in addition to features recited in base claim 11 (see rationales discussed above), Gilbert further discloses assigning one channel to each of plural consumer provided equipment (110), wherein each consumer provided equipment receives media access protocol messages (*address information*) on its assigned channel (*col. 10, lines 18-20*).

Regarding **claim 13**, in addition to features recited in base claim 12 (see rationales discussed above), Gilbert further discloses a base station controller (Fig. 5; 122 or Fig. 9; 162) generates the media access protocol messages, and wherein the media access protocol messages instruct the consumer provided equipment to switch channels so as to receive data burst (*col. 13, lines 51-59 and col. 10, lines 18-20 and col. 13, lines 4-18*).

Regarding **claim 14**, in addition to features recited in base claim 13 (see rationales discussed above), Gilbert further discloses wherein the base station controller includes a centralized scheduler (cluster controller 162) that allocates channels and slots in those channels to the consumer provided equipment for receipt of the data burst (*col. 13, lines 53-54 and thereafter*).

Regarding **claim 15**, in accordance with Gilbert reference entirety, Gilbert discloses a memory storing information including instructions, the instructions executable by a processor to receive time division duplexed messages, the instructions comprising: switching channels based on received media access control messages so as to receive data burst on plural channels (*col. 13, lines 51-59 and col. 10, lines 18-20 and col. 13, lines 4-18*).

Regarding **claim 16**, in accordance with Gilbert reference entirety, Gilbert discloses an apparatus for managing time division duplexing (TDD) across plural channels (*Figure 4; channels of CPEs 110*), comprising:

means for synchronizing (*base station 106 or cluster controller 162*) frames across the plural channels so that upstream frames and downstream frames coincide

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across the plural channels (*note: In the Abstract and thereafter, Gilbert discloses the communication channels are configured to have symmetric uplink/downlink bandwidths between the CPEs 104 and the base station 106. Moreover, at col. 13, line 40 and thereafter, Gilbert further discloses co-channel interference is reduced by synchronizing the cell transmit/receive base stations 106 with or across cluster 160.*

The recitation thereat in view of Figures anticipates the claimed limitation in a manner as recited).

Regarding **claim 17**, in accordance with Gilbert reference entirety, Gilbert discloses an apparatus for receiving time division duplexed messages, comprising:

means for switching channels (110) based on received media access control messages so as to receive data burst on plural channels (*col. 13, lines 51-59 and col. 10, lines 18-20 and col. 13, lines 4-18 and Fig. 7 or 8*).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stanwood et al (USP 6,683,866).

Stanwood et al (US Pub. 2001/0038620).

Jones et al (USP 6,108,314).

Evans et al (USP 6,151,312).

Agarwal (USP 5,802,061).

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IEEE 802.16 Broadband Wireless Access Working Group, MAC Proposal for IEEE 802.16.1, pages 1-92, January 2000.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is (703) 308-5428. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Frank Duong
Examiner
Art Unit 2666

May 25, 2004